

We claim:

1. A fluid processing disposable set comprising:
a fluid port adapted to couple with a container; and
a variable-volume chamber in fluid communication with the fluid port, the chamber defined by a fixed wall and an elastic wall, the elastic wall formed by a shaped diaphragm.
2. A fluid processing disposable set according to claim 1 further comprising:
a rotary seal coupled to the fluid port, the rotary seal fluidly coupled to the chamber.
3. A fluid processing disposable according to claim 1 wherein the shaped diaphragm is convoluted.
4. A fluid processing disposable set according to claim 3, wherein the shaped diaphragm has at least one fold.
5. A fluid processing disposable set according to claim 4, wherein the shaped diaphragm has a plurality of folds, the folds located symmetrically about an axis.
6. A fluid processing disposable set according to claim 1, wherein the shaped diaphragm is essentially planar in an unstretched position, the diaphragm varying in thickness.
7. A fluid processing disposable set according to claim 6, wherein the thickness is constant at locations equidistant from an axis.

8. A rotor for use in a centrifuge system, the system having means for spinning the rotor about an axis, the rotor comprising:

a fixed portion including a conduit assembly;

a rigid mounting member, rotatably mounted around the fixed portion and the axis of rotation of the rotor, the mounting member capable of being held and spun by the spinning means; and

a shaped diaphragm mounted to the rigid mounting member, the diaphragm adapted to rotate with the rigid mounting member, the diaphragm defining a variable-volume chamber.

9. A rotor according to claim 8 further comprising:

a rotary seal located around the axis, the rotary seal providing a seal between the rigid mounting member and the fixed portion.

10. A rotor according to claim 8, wherein the rigid mounting member includes a boundary wall which, together with the shaped diaphragm, defines the variable-volume chamber.

11. A rotor according to claim 8, wherein the shaped diaphragm is convoluted.

12. A rotor for use in a centrifuge system, the system having means for spinning the rotor, the rotor comprising:

a rigid mounting member for being held and spun by the spinning means;

a shaped, elastic diaphragm mounted on the rigid mounting member so as to spin with the rigid mounting member, the diaphragm defining a chamber of varying volume; and

a conduit in fluid communication with the chamber, the conduit defined by the rigid mounting member.

13. A centrifuge system comprising:

a rotor comprising:

a fixed portion including a conduit assembly;

a rigid mounting member, rotatably mounted around

the fixed portion and an axis of rotation of the rotor, the mounting member capable of being held and spun by a chuck; and

a shaped, convoluted diaphragm mounted to the rigid mounting member, the diaphragm adapted to rotate with the rigid mounting member, the diaphragm defining a chamber of varying volume; and

a chuck having a surface, the surface having chuck features disposed upon it;

wherein the surface and the diaphragm define a plurality of chamber segments.

14. A method for selective harvest of fluid constituents from a whole fluid comprising:

providing a centrifuge system according to claim 13;

introducing whole fluid to the rotor of the centrifuge system;

spinning the chuck and the rotor about the axis;

collecting fluid constituents within chamber segments defined by the rotor; and

harvesting a constituent from within a chamber segment.

15. A method for selective harvest of fluid constituents from a whole fluid comprising:

providing a fluid processing disposable set according to claim 1;

introducing whole fluid to the variable-volume chamber;

spinning the chamber to separate fluid constituents; and

harvesting a constituent from the chamber.